

RUI CHEN

Curriculum Vitae ◇ <https://ruichen-v.github.io/> ◇ richen@umich.edu · ruichen2@andrew.cmu.edu

EDUCATION

M.S. in Electrical and Computer Engineering / Robotics, CV Rackham Graduate School. The University of Michigan, Ann Arbor.	Sep. 2017 - Dec. 2018 CGPA: 3.96/4.00
B.S. in Computer Engineering Joint-Institute, College of Engineering. Dual-Degree Program. Shanghai Jiao Tong University, Shanghai, China - University of Michigan, Ann Arbor, U.S.	Sep. 2013 - May 2017 CGPA: 3.75/4.00

SKILLS AND INTERESTS

Interests	Inverse Reinforcement Learning, Meta Learning, Reinforcement Learning, Computer Vision, Deep Learning, Probabilistic Robotics.
Application Skills	Human-Robot Interaction, Autonomous Vehicles, Manufacturing. PCL, Cuda, Polysync, ROS, Tensorflow, RTOS, Embedded Systems, Electronics Design, Computer Networks, Distributed/Parallel Computing.
Software	Unreal Engine 4 (Editor & C++ Programming), Blender, AutoCAD, Sketchup.
Languages	C/C++, Python, Matlab, Arduino.

PUBLICATION

- X. Chen, **R. Chen**, Z. Sui, Z. Ye, Y. Liu, R. I. Bahar, and O.C.Jenkins, “GRIP: generative robust inference and perception for semantic robot manipulation in adversarial environments”, in *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2019, Available: <https://arxiv.org/abs/1903.08352>
- R. Chen**, W. Wang, Z. Zhao, and D. Zhao, “Active Learning for Risk-Sensitive Inverse Reinforcement Learning”, *IEEE Robotics and Automation Letters (RA-L) (In Review)*, 2019, Available: <https://arxiv.org/abs/1909.07843>
- R. Chen**, M. Arief, and D. Zhao, “How to Evaluate Self-Driving Testing Ground? A Quantitative Approach”, *IEEE Transactions on Intelligent Transportation Systems (T-ITS) (In Review)*, 2019.

RESEARCH

Meta Imitation Learning for Human-Robot Collaboration <i>Intelligent Control Lab, Robotics Institute</i>	Sep 2019 - Present <i>Carnegie Mellon University, Pittsburgh</i>
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- Meta-learned one-shot imitation model for fast adaptation to unseen human-robot collaboration tasks.

Active Learning for Risk-Sensitive Inverse Reinforcement Learning <i>Safe AI Lab, Mechanical Engineering</i>	June 2019 - Sep 2019 <i>Carnegie Mellon University, Pittsburgh</i>
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- Active demonstration querying for faster human risk envelope approximation via disturbance planning.
- Experimental verification in single-step and multi-step setting with simulated car-following task in Carla.

Generative Robust Inference and Perception in Adversarial Environments <i>Lab 4Progress, Department of EECS</i>	Sep 2018 - March 2019 <i>University of Michigan, Ann Arbor</i>
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- First stage Pyramid CNN provides prior knowledge on object labels, locations and aspect ratios.
- Second stage particle filter searches in 6D space with feature-based likelihood function.

Evaluation of CAV testing grounds via generative sample-based optimization <i>Safe AI Lab, Mechanical Engineering</i>	April 2019 - Sep 2019 <i>Carnegie Mellon University, Pittsburgh</i>
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- Evaluating testing capability based on utility of V2V interaction scenarios within testing ground road map.
- Estimating spatial compatibility of traffic encounter primitives via iterated likelihood weighting.

PROJECTS

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| Automatic driving scenario generator from OSM data in Carla | April 2018 - Aug. 2018 |
| · An automatic map and route generator from OSM data for testing self-driving algorithms in Carla. | |
| Lincoln MKZ on-track testing with simulated traffic scenarios | Jan. 2018 - May 2018 |
| <i>Mcity</i> | <i>Ann Arbor</i> |
| · Fully automated and remotely controllable testing, result reporting, parameter updating, and position reset cycle. | |
| · Virtual dynamic road users challenging real autonomous vehicle in Mcity. | |
| Surface normal prediction from single color image | March 2018 - April 2018 |
| · Surface normal estimation from single color image using stacked hourglass model. | |
| Particle filter SLAM on mobile bot with RPLIDAR | November 2017 - Dec. 2017 |
| · Sensor fusing, pose interpolation, particle filtering, occupancy grid. | |
| Autonomous Self-balancing robot | October 2017 - November 2017 |
| · Path planning and following using Potential Field Method with Optitrack motion capture system. | |
| RGBD-based object manipulation using a 6-DOF robotic arm | Sep. 2017 - October 2017 |
| · 6D block pose estimation and color classification followed by block stacking and organizing. | |

POSITIONS OF RESPONSIBILITY

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| Research Assistant @Intelligent Control Lab, Robotics Institute, CMU | Sep. 2019 - Present |
| Research Assistant @Safe AI Lab, Mechanical Engineering, CMU | Feb. 2019 - Sep. 2019 |
| Research Assistant @Lab 4Progress, The University of Michigan, Ann Arbor | Sep. 2018 - Feb. 2019 |
| Research Assistant @Mcity, Ann Arbor | Jan. 2018 - June 2018 |
| Software Intern @NVIDIA, San Jose | May 2016 - July 2016 |
| Teaching & Lab Assistant @UM-SJTU, Shanghai Jiao Tong University, Shanghai | March 2015 - July 2016 |

AWARDS AND HONORS

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| University Honors, University of Michigan | Dec. 2015, April 2016, April 2017 |
| Dean's List, University of Michigan | Dec. 2015, April 2016, Dec. 2016, April 2017 |
| Excellent assistant class advisor, Shanghai Jiao Tong University | Aug. 2015 |
| Academic Excellence Scholarship, Shanghai Jiao Tong University | Dec. 2014 |
| Dean's List, Shanghai Jiao Tong University | April 2013, April 2014 |